A Cooperative system for digital broadcasting and 5G mobile communications

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Background
Television broadcasting and mobile communications have been delivered by separate systems for more than half a century. The benefit of integrating these two systems in a single flexible and versatile infrastructure will be enormous. An idea of integrating these systems based on the existing cellular infrastructure has been investigated in [1, 2]. However, the previous studies have a drawback of relying only on the cellular technology and infrastructure, thus having not explored the full potential of a cooperative system.

Recently, a novel idea of the next generation TV broadcasting system, namely WiB, has been proposed in [3] and gathered substantial attention. WiB is capable of delivering TV and 5G mobile broadband services simultaneously in a cooperative manner. Therefore, it is important to carefully analyze the performance of the WiB system in order to understand the benefit of the promising proposal.

Project task
The aim of this thesis project is to establish the performance evaluation methodology for the novel WiB system and conduct the performance evaluation. The evaluation will be mainly based on system-level simulations. One can utilize a MATLAB simulator developed for the basic performance evaluation of the cooperative system.

Precisely, the tasks of this project include:

1. Establishing performance evaluation methodology including evaluation scenarios, system models, and experimental parameters
2. Further developing and modifying the system-level simulator that has been used for preliminary performance analysis.
3. Conducting simulation experiments to examine the performance of the WiB system.

Type of Project: Simulation and analysis

References
